An Empirical Analysis of the Association between Capital Structure and Financial Performance of Indian Firms in the context of the Equity Market Timing Theory

Synopsis

Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

in

Management

By

Sakshi Khanna
Enrollment Number: 116801

Under the supervision of

Dr. Amit Srivastava
&
Dr. Yajulu Medury

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES
JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY
WAKNAGHAT - 173234, H.P., INDIA
April, 2016

CONTENTS

S. No.	TOPIC	Page No.
1.	INTRODUCTION	1
2.	REVIEW OF LITERATURE	2
3.	OBJECTIVES OF THE STUDY	3
4.	EQUITY MARKET TIMING AND CAPITAL STRUCTURE OF THE INDIAN FIRMS	4
5.	MACROECONOMIC VARIABLES AND CAPITAL STRUCTURE DECISIONS OF INDIAN FIRMS	9
6.	CAPITAL STRUCTURE DYNAMICS DURING RECESSION	11
7.	CAPITAL STRUCTURE DYNAMICS AND VALUE OF INDIAN FIRMS	14
8.	FINDINGS OF THE STUDY	18
9.	CONCLUSION	19
10.	POLICY IMPLICATIONS	19
11.	LIMITATION OF THE STUDY	20
12.	REFERENCES OF SELECTED PAPERS	21
13.	PUBLICATIONS	22

1. INTRODUCTION

The term capital structure refers to different types of financing (debt and equity) applied by a firm in such a way which minimizes both the overall cost of financing as well as the overall financial risk and thereby maximizes the value of the firm. While debt financing leads to more financial risks, equity financing dilutes the control of ownership; therefore, the firm must have to look for its optimal capital structure. The research in this area got its momentum after the seminal work of Modigliani & Miller in 1958 and 1963. Thereafter, three important theories of capital structure were proposed – the trade-off theory, which states that debt is taken up to the level at which the tax benefits of debt are balanced against the bankruptcy costs (Kraus & Litzenberger, 1973); the pecking-order theory which propose that the firms finance their investments first with retained earnings, then with debt and finally, with equity (Myers & Majluf, 1984); and the Equity Market Timing Theory, according to which the firms attempt to issue (or repurchase) equity when their market values in general are over (or under) valued relative to their book and past market values (Baker & Wurgler, 2002).

Trade-off theory and pecking order theory, although provided a theoretical framework for studying the capital structure choice of a firm, but they relied more on internal factors of the firm and did not consider the importance of external environmental factors for capital structure decisions. The market timing theory, however, overcome this limitation and focuses on the effect of changes in the capital structure of a firm with respect to changes in time, changes in government policies and changes in market conditions etc. Therefore, it emphasizes the importance of timing of raising fund so that the value of the firm can be maximized. In addition to this, from the work done on the capital structure it was seen that as compared to developed economies, there were few studies done for developing economies, especially for India. Further, there was no empirical support for the equity market timing theory of capital structure for the Indian market. Therefore, it will be interesting to explore whether the Indian firms time the market or not? How the capital structure decisions differ across the three sectors of economy i.e., primary secondary and tertiary? And how the capital structure dynamics affect the value of Indian firms? etc. Thus, in order to answer these questions, the capital structure decisions of the Indian firms are analyzed in the context of the equity market timing theory. So far as per authors' knowledge, the present study is the first one, which explores the validity of Equity Market Timing for Indian firms, with empirical support.

It is important to know the determinants of the capital structure without which it is impossible to take an optimal decision. Broadly the determinants have been classified into two categories – firm-specific factors (internal factors) such as profitability, asset tangibility, size etc.; and the other is – macroeconomic factors (external factors) like inflation, GDP, stock market indicators and so on. How these factors affect the capital structure decision of Indian firms will be an interesting study. Moreover, there is no study so far which explores the dynamics of capital structure when the firms have been classified into three sectors –

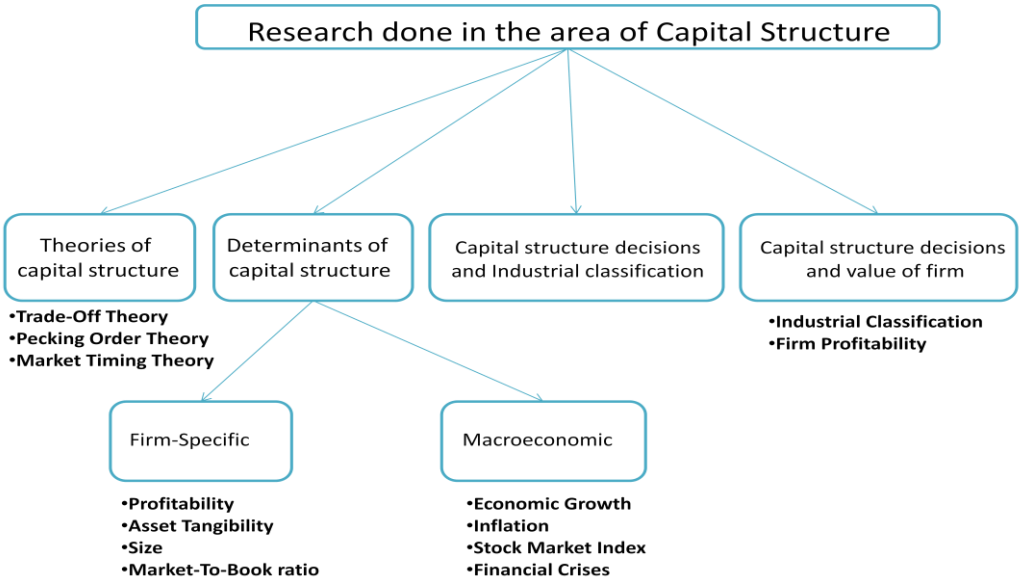
primary, secondary and tertiary, therefore, the present study is a pioneer one in studying this after categorizing the Indian firms into the primary, secondary and tertiary sector.

Apart from these studies, the research on finding out the level of optimal capital structure for Indian firms is scanty. It would definitely be pertinent to know the optimal level at which the firm can maximize its value. Therefore, the present study explores the optimal capital structure of Indian firms in totality as well as when they are categorized into three sectors.

Thus, it could be said that the capital structure of a firm is the pivot on which the entire business functions. It provides security, stability and flexibility to the firms; and it also enables them to adapt and compete in the changing economic environments. So, the policymakers should place greater emphasis on the facilitation of the finance as the correct decision would reduce the businesses sensitivity on economic cycles and would help in maximizing the value of the firms. Thus, this study will provide some useful insights in designing a more appropriate capital structure policy for Indian firms. Finally, the study will propose some recommendations which will definitely help the managers of Indian firms to formulate their capital structure strategies.

2. REVIEW OF LITERATURE

The research done in the area of capital structure has been structured as follows:



Source: Authors' compilation

2.1. Review of Selected Papers

Papers	Nation	Period	Result
Shyam-Sunder & Myers, 1999; Lemmon & Zender, 2002; Farhat, Cotei & Abugri, 2006	United States; United States; India	1971-1989; 1971-1991; 1990-2004	Pecking order is an excellent descriptor of corporate finance.
Rajan & Zingales, 1995; Antoniou et al., 2002; Frank & Goyal, 2007; Chakraborty, 2010	G7 countries; U.K, France, Germany; United States; India	1987-1991; 1969-2000; 1950-2003; 1995-2008	Firms follow pecking order (indirect relationship of profitability with leverage).
Frank & Goyal, 2000; Hovakimian et al., 2001; Singh & Kumar, 2008	United States; United States; India	1980-1998 1979-1997; 1991-2007	Firms follow Trade-off theory.
Taub, 1975; Salawu & Agboola, 2008; Panda, Mohapatra & Moharana, 2013	United states; Nigeria; India	1960-1969; 1990-2004; 2000-2010	Firms follow trade-off theory (direct relation of profitability with leverage).
Baker & Wurgler, 2002; Welch, 2004; Huang & Ritter, 2009; Bougatef & Chichti, 2010	United States; United States; United States; Tunisia and France	IPO years 1968-1999; IPO years 1962-2000; IPO years 1963-2001; IPO years 2000-2008	Equity market timing has a large and persistent effect.
Alti, 2006; Islam & Heaney, 2009; Russel & Hung, 2013	United States; Australia; China	IPO years 1971-1999; IPO years 1997-2005; IPO years 1992-2007	Support the existence of equity market timing but not the persistent impact.
Bie & Haan, 2004; Çelik & Akarim, 2013	Dutch; Turkey	IPO years 1983-1997; IPO years 1999-2008	Do not validate the existence of equity market timing theory.
Bowen et al., 1982; Bradley et al., 1984; Long & Malitz, 1985; Kester, 1986	United States (Drugs, Instruments, Electronics and Food)	1951-1970; 1962-1981; 1978-1980; 1982-1983	Low leverage Firms.
	United States (Paper, Textile mill products, Steel, Airlines and Cement)		High leverage Firms.
Pattani, Vera,& Wackett, 2011; Kahle & Stulz, 2013; Srivastava, 2014	United Kingdom; United States; Indian steel and banks	2008-2011; 1983Q1-2010Q3; 1999-2013	Increase in debt as well as equity in 2008-09 and a decline in debt in 2009-10 (i.e., post recession).
Brun et al., 2013	Belgium, German, Spain, France, Italy and Portugal	1987-2010	Crises do not have a significant impact on the financing of firms.
Opler & Titman, 1994; Pradhan, 2011	United States; Indian manufacturing and IT firms	1972-1991; 2006-2009	Financial crises have an indirect impact on the performance of firms.
Roden & Lewellen, 1995; Berger & Bonaccorsi, 2006; Altan & Arkan, 2011; Javed & Akhtar, 2012	United States; United States (Banks); Japan (Manufacturing Industry); Pakistan	1981-1990; 1990-1995; 2004Q1-2007Q3; 2004-2008	Firm leverage has a linear and a direct relationship with firm value.
Kinsman & Newman, 1998; Majumdar and Chhibber, 1999; Gleason, Mathur & Mathur, 2000; Chiang Yat Hung et al., 2002; Lakshmi et al., 2015	United States; India; European countries (Retailers); Hong Kong (Property and Construction Firms); India	1987-1995; 1988-1994; 1994-1998; 1993-2000; 2010-2014	Firm leverage has a linear and an indirect relationship with firm value.
Lin, 2007; Nieh et al., 2008; Cuong & Canh, 2012; Ahmad & Abdullah, 2013	Taiwan (48.92% - 49.55%); Taiwan (Electronic Firms, 12.37% - 28.70 %); Vietnam (Seafood Industry, value of 59.27%) Malaysia (64.33%)	1997-2005; 1999Q1-2004Q3; 2005-2010; 2005-2009	An asymmetric non-linear relationship between firm leverage and value.

Source: Authors' compilation

3. OBJECTIVES OF THE STUDY

The present study analyzes the capital structure decisions of Indian firms in context to the equity market timing theory and it also intends to study how the firms can maximize their values by having an optimal debt ratio. Therefore, the following objectives have been set:-

1. To study the effect of equity market timing on the capital structure of the Indian firms.
2. To study the causal effect of macroeconomic variables on the capital structure decisions of the Indian firms.
3. To analyze the relationship between the management efficiency, capital structure and performance of Indian firms during the period of recession (2008-2009).
4. To analyze the effect of capital structure dynamics on the value of Indian firms.

The 1st objective validates the existence of equity market timing theory for Indian firms and along with that, it also considers the effect of some important firm-specific variables on the capital structure decisions of the firms. In the 2nd objective, the causal effect of the macroeconomic variables on the capital structure decisions of the firms is studied. The 3rd objective is a special case of the 2nd objective, in which the capital structure decisions of those firms are studied, which issued equity during recession (2008-09) and their performance have been compared with the performance of those firms which did not issue equity during recession. So, in the 3rd objective, the relationship between management efficiency, capital structure decisions and performance of firms during the period of recession is analyzed. Finally, the 4th objective analyzes how the capital structure decisions affect the value of a firm. Here, the existence of an asymmetric non-linear relationship between debt ratio and value of the firm is tested; and if it exists, then to determine the optimal (or the threshold) level of debt.

The above objectives are also studied when the firms are categorized into the three sectors of the Indian economy– primary, secondary and tertiary. However, for the third objective, since the number of firms were less, so the sectoral classification was not possible.

The analysis is done on the open-source software– gretl 1.10.1.

4. EQUITY MARKET TIMING AND CAPITAL STRUCTURE OF THE INDIAN FIRMS

Here the focus is on two objectives– first, to study the effect of equity market timing on the capital structure of the Indian firms and second, to study the effect when the firms are categorized into the three sectors of the Indian economy. In addition to this, the impact of different firm-specific factors− asset tangibility, profitability and size are also studied. Further, this study captures the individual year effect, by taking into consideration the year in which the firms had issued their initial public offering (IPO).

The present analysis is different from the earlier studies done in this area, as they did not consider the year in which the firms had issued their IPOs and therefore it is supposed to provide better results. In addition

to this, it also brings out the sectoral difference in the capital structure of the firms in context to equity market timing theory.

4.1. Methodology

It is seen that IPOs are the most robust measure of market timing (Alti, 2006), as they offer more room for misvaluation. So, here the capital structure of the firms is analyzed around their IPO years, holding the number of years since their IPO constant.

Further, to test the validity of the individual year effect, a comparison is made of the results of the regression analysis, when the firms' IPO+1, IPO+2 etc. of all the IPO years are clubbed without considering the year in which the IPOs were issued (as is done in the earlier studies) with the results of the regression analysis when the firms' IPO+1, IPO+2 etc. are clubbed taking into consideration the years in which the IPOs were issued (as done in this study).

The sample consists of annual (audited) data of the firms listed on the Bombay Stock Exchange (BSE). The period of the study is from the year 1992-2011, i.e., from the IPO year 1992 up to the IPO year 2001 and it goes up to the year IPO+10 for each IPO year, respectively. Therefore, for the firm having an IPO year 2001, the data goes up to 2001+10 year, i.e., 2011.

Here, for the analysis, the firm-years with missing information on the firm variables like total assets, profitability etc. have been dropped. Further, in order to avoid the effect of outliers, all those firms which have their book leverage values greater than or equal to one have been dropped for that particular year; because those firms have their book equity negative. Academicians and practitioners argue that the firms with negative book equity stocks have high default risk (Brown, Lajbcygier, & Li 2008). In addition to this, some of the IPO years were also dropped from the analysis because it was not possible to run regression due to less number of firms− the IPO year 1998 from all firms' data; IPO years 1997 to 2001 from primary sector firms; IPO years 1997 to 1999 and the IPO year 2001 from secondary sector firms; and finally the IPO years 1997, 1998 and 2001 from the tertiary sector firms.

4.1.1. Variables Used

The Table 4.1 below, shows the variables used along with their formulae. These variables have been computed using the definitions from COMPUSTAT.

Table 4.1: Variables and their Computations

Variable Name	Computation
Total Liabilities	Minority interest reserves + Borrowings (including Convertible Debt) – Convertible Debt + Current Liabilities+ Deferred Tax liability
Book Equity, BE	Total Assets – Total Liabilities – Preferred Stock + Convertible Debt
Book Debt	Total Assets – Book Equity

Book Leverage, $\left(\frac{D}{A}\right)$	Book Debt / Total Assets
Market Equity	Common Shares Outstanding x Weighted Average Price
Net Equity Issues, e	Δ Share Capital =Δ Book Equity – Δ Balance carried to Balance Sheet
Net Equity Issues, $\left(\frac{e}{A}\right)$	Net Equity Issue / Total Assets
Newly Retained Earnings, $\left(\frac{\Delta RE}{A}\right)$	Δ (Balance carried to Balance Sheet / Total Assets)
Market-to-Book, $\left(\frac{M}{B}\right)$	(Total Assets – Book Equity + Market Equity) / Total Assets
Residual Change in Leverage, $\left[BE_{t-1}\left(\frac{1}{A_t}-\frac{1}{A_{t-1}}\right)\right]$	Lagged Book Equity divided by Total Assets minus lagged Book Equity divided by lagged Total Assets.
Asset tangibility, $\left(\frac{PPE}{A}\right)$	(Net land and buildings + Net plant & machinery, computers and electrical assets + Net transport & communication equipment and infrastructure + Net furniture, social amenities and other fixed assets) / Total Assets
Profitability, $\left(\frac{EBITDA}{A}\right)$	Earnings before Interest, Taxes and Depreciation / Total Assets
Size	log (Sales)

Source: Authors' computation (using COMPUSTAT) (Δ = change operator).

Now, in order to capture the yearly timing of financing activities (Islam & Heaney, 2009), change in leverage is used as the dependent variable and market-to-book (MTB) ratio is used as a proxy for market timing (it is also the independent variable). Further, the effect of other (independent) variables like Asset Tangibility$\left(\frac{PPE}{A}\right)$, Profitability $\left(\frac{EBITDA}{A}\right)$and Size (log (Sales)) is also analyzed on the capital structure of the firms.

4.1.2.Model Used

To study the effect of MTB and other variables on the change in leverage, Baker & Wurgler's (2002) market timing model was used (Equation 4.1):

$$\left(\frac{D}{A}\right)_t-\left(\frac{D}{A}\right)_{t-1}=\alpha+\alpha_1\left(\frac{M}{B}\right)_{t-1}+\alpha_2\left(\frac{PPE}{A}\right)_{t-1}+\alpha_3\left(\frac{EBITDA}{A}\right)_{t-1}+\alpha_4\log(Sales)_{t-1}+\alpha_5\left(\frac{D}{A}\right)_{t-1}+\varepsilon \quad (4.1)$$

Where α represents the constant, α_1, α_2, α_3, α_4 and α_5 are the coefficients for MTB, asset tangibility, profitability, size and lagged leverage respectively and ε is the error term. The dependent variable is

change in book leverage $\left(\frac{D}{A}\right)_t - \left(\frac{D}{A}\right)_{t-1}$. Here, the subscript "t" reflects the time and "t-1" reflects the time lagged by one period. Further, in order to capture the time series effects, lagged leverage $\left(\frac{D}{A}\right)_{t-1}$ is included in the model as a control variable.

As it is known that the change in leverage depends upon net equity issue $\left(\frac{e}{A}\right)$, change in retained earnings $\left(\frac{\Delta RE}{A}\right)$ and residual change in leverage $\left[BE_{t-1}\left(\frac{1}{A_t} - \frac{1}{A_{t-1}}\right)\right]$ (which depends on the total growth in assets from the combination of equity issues, debt issues and newly retained earnings) (Baker and Wulger 2002) and is shown below in the Equation 4.2:

$$\begin{aligned}\left(\frac{D}{A}\right)_t - \left(\frac{D}{A}\right)_{t-1} &= -\left[\left(\frac{BE}{A}\right)_t - \left(\frac{BE}{A}\right)_{t-1}\right] \\ &= -\left(\frac{e}{A}\right)_t - \left(\frac{\Delta RE}{A}\right)_t - \left[BE_{t-1}\left(\frac{1}{A_t} - \frac{1}{A_{t-1}}\right)\right]\end{aligned} \tag{4.2}$$

Therefore, to test whether the firms followed the equity market timing or not, each of the above factors (from Equation 4.2) was regressed on MTB ratio and other independent variables of the Equation 4.1 separately. First, net equity was taken as the dependent variable and was regressed on the independent variables of the Equation 4.1, thereafter change in retained earnings and residual change in leverage were taken as the dependent variables. Now, as per the equity market timing theory, the change in leverage should come through the net equity issue, i.e., the firms should issue equity when their MTB ratio is high. Therefore, an indirect relation of MTB is expected with the change in leverage and a direct relation with net equity issue.

The above model was run for each level of IPO (i.e., IPO+1, IPO+2 and so on till IPO+10) for all the IPO years (1992, 1993 and so on up to 2001) independently; for all firms' data and also, when they were categorized into the three sectors of the economy. Thereafter, the results of the regression equations were checked for heteroskedasticity using White's test and if they were found so, then it was removed using the weighted least square method.

Next, Table 4.2 below shows the expected relation of the variables used with the dependent variables, as per the equity market timing theory.

Table 4.2: The expected sign of coefficients of different variables

	Independent Variables			
Dependent variable	**MTB**	**Asset Tangibility**	**Profitability**	**Size**
Change in leverage	Negative	Positive	Negative	Positive
Net equity issue	Positive	Positive	Positive	Positive
Change in retained earnings	Negative	Negative	Positive	Positive
Residual change in leverage	Negative	Negative	Negative	Negative

Source: Authors' compilation.

4.2. Data Analysis and Results

The summary of the results of the regression analysis is shown in the Tables (4.3 and 4.4) below. However, the detailed results are presented in the Tables in Annexure (from A.1 –A.4).

Table 4.3: Summary of the Results for All Firms' Data (without considering the IPO years)

IPO Year	Dependent Variable	Independent Variables			
		MTB	Asset Tangibility	Profitability	Size
ALL Firms	Change in Leverage	✓*	✓*	✓*	✓*
	Net Equity Issued	✓*	✓*	✓*	✓*
	Change in Retained Earnings	X*	✓*	✓*	✓*
	Residual Change in Leverage	✓*	✓*	✓*	✓*

Source: Authors' compilation (Here ✓ means relation is according to theory, X means relation is not according to theory and * means the values are significant at 5% level of significance).

Table 4.4: Summary of the Results for All Firms' Data (considering the IPO years)

IPO Year	Dependent Variable	Independent Variables			
		MTB	Asset Tangibility	Profitability	Size
1992 - 1995	Change in Leverage	✓*	✓*	✓*	✓*
	Net Equity Issued	✓*	✓*	✓*	✓*
	Change in Retained Earnings	✓*	✓*	✓*	✓*
	Residual Change in Leverage	✓*	✓*	✓*	✓*
1996 - 1997	Change in Leverage	X*	✓*	✓*	✓*
	Net Equity Issued	✓	X	✓	✓
	Change in Retained Earnings	X*	X*	✓*	X*
	Residual Change in Leverage	X*	✓	✓*	X
1999 - 2000	Change in Leverage	X	✓	✓	✓
	Net Equity Issued	✓	✓	✓	X
	Change in Retained Earnings	✓	✓	✓*	✓
	Residual Change in Leverage	✓	X	✓*	X

Source: Authors' compilation (Here ✓ means relation is according to theory, X means relation is not according to theory and * means the values are significant at 5% level of significance).

From the results of the regression analysis when the firms' data is clubbed without considering the year in which the firms issued their IPOs (from Table 4.3), it was seen that market timing plays an important role in defining the capital structure of the Indian firms. On the other hand, from the results of the regression analysis done for each IPO year separately (from Table 4.4), a transition is seen. For the IPO years' 1992-1995, MTB has an indirect relationship with change in leverage and a direct relationship with net equity (as expected); for the IPO years 1996 and 1997, it is seen that MTB has a direct relationship with change in leverage, i.e., opposite to the theory and is significant for only a few cases. However, for the firms with IPO years 1999, 2000 and 2001, it is seen that MTB does not have a significant relationship with change in leverage. So, it could be said that for the firms with the IPO years 1992-1995 equity market timing plays an important role in defining the capital structure of the firms. Whereas for the firms with the IPO years 1996-2001, equity market timing did not play a significant role, in fact, firms' profitability plays a major role in explaining the capital structure of the firms.

Thus, a difference is seen in the results of the two and it could be said that the year in which the IPO's were issued, plays an important role in the equity market timing theory of capital structure.

Similar results were seen when the firms were classified into the different sectors, but the effect of equity market timing was more pronounced for secondary sector firms. Thus, it could be said that there exists an inter-sectoral variation in the capital structure decisions of the firms.

4.3. Conclusion

The Indian firms were quite vigilant and they did not follow the equity market timing theory blindly, in fact, they matched their requirement of funds according to the changes in the economic conditions. The results showed that the year in which the firms issued their IPOs, plays an important role while designing an optimal capital structure. In addition to this, it is seen that firm profitability plays a major role in defining the capital structure of the firms. Similar results were seen when the firms were classified into the different sectors, but the effect of equity market timing was more pronounced for the secondary sector firms.

Therefore, from this, we can say that mere expansion of the economy is not the only factor, but the stability in the economic environment also plays an important role in deciding the choice of capital structure for the firms. So, it is very important to understand how the macroeconomic environment of a nation affects the firms' choice of capital. Thus, the next chapter discusses the causal effect of the macroeconomic conditions on the capital structure decisions of Indian firms.

5. MACROECONOMIC VARIABLES AND CAPITAL STRUCTURE DECISIONS OF INDIAN FIRMS

Here, the causal effect of the macroeconomic variables (i.e., GDP, WPI and SENSEX) on the firms' choice of capital is analyzed. The present analysis focuses on two objectives− first, to study the causal effect of macroeconomic variables on the capital structure decisions of Indian firms and second, to study the same effect when the firms are categorized into the three sectors of the Indian economy.

The literature shows that most the studies done in this area do not test for stationarity of the series or they assume that the series are stationary. Therefore, here the time series are tested for stationarity.

5.1. Methodology

The dependent variables are the average values of book leverage, net equity (or share capital) and retained earnings separately, for a particular year and the independent variables are the macroeconomic variables viz. GDP, WPI and SENSEX of India. Further, to linearize the trend of the time series, the macroeconomic data is transformed to its natural logarithm.

The sample consists of annual (audited) data of the firms listed on the BSE and the period of the study is from the year 1992-2013. The raw data of the firms are taken from the database CMIE PROWESS; of the macroeconomic variables from RBI's website.

Here again for a particular year, all the firms with missing information on firm variables and those firms which have their book leverage values greater than or equal to one were dropped.

5.1.1. Variables Used

The Table 5.1 below shows the variables used and how they are computed using the definition of variables from COMPUSTAT.

Table 5.1: Variables and their Computations

Variable Name	Computation
Total Liabilities	Minority interest reserves + Borrowings (including Convertible Debt) – Convertible Debt + Current Liabilities+ Deferred Tax liability
Book Equity	Total Assets – Total Liabilities – Preferred Stock + Convertible Debt
Book Leverage	(Total Assets – Book Equity)/Total Assets
Retained Earnings	Retained Earnings/Total Assets
Net Equity	(Book Equity – Retained Earnings)/Total Assets

Source: Authors' compilation (using COMPUSTAT).

5.1.2. Model Used

To study the causal effect of the macroeconomic variables on the firms' choice of capital structure, VECM/VAR method is applied. The model is used for all the three dependent variables, i.e., book leverage, net equity and retained earnings, in the case of all firms' data as well as when the firms are categorized into the three sectors of the economy.

The manner, in which the macroeconomic variables influence the firms' choice of capital, is explained differently by the three theories of capital structure. The Trade-off theory states that leverage is pro-cyclical (positively correlated with the economy); the Pecking order theory implies that leverage is counter-cyclical (negatively correlated) and the Equity Market Timing Theory states that equity is pro-cyclical. Further, the Table 5.2 below shows the expected sign of the independent variables with the dependent variables, according to the equity market timing theory.

Table 5.2: The expected sign of coefficients of different variables

Dependent Variable/ Independent Variable	Expected Signs		
	Book Leverage	**Net Equity**	**Retained Earnings**
SENSEX	Negative	Positive	Negative
Gross Domestic Product	Negative	Positive	Negative
WPI	Positive	Negative	Positive/Negative

Source: Authors' compilation.

5.2. Data Analysis and Results

All the variables were found to be stationary.

The results are summarized in Table 5.3 below and the results of VECM/VAR model for all firms' data, primary, secondary and tertiary sector firms are displayed in Annexure (Tables A.5-A.8).

Table 5.3: Summary of the Results

Sectors	Dependent Variable	Long-Term Effect	Independent Variable					
			SENSEX		GDP		WPI	
			Short-Term Effect		Short-Term Effect		Short-Term Effect	
			Relation	According to Theory	Relation	According to Theory	Relation	According to Theory
All Firms	Book leverage	Yes	Positive	-	Negative	-	Positive*	Yes
	Net equity	No	Negative	-	Positive	-	Positive	-
	Retained earnings	Yes	Positive	-	Negative	-	Negative	-
Primary Sector Firms	Book leverage	Yes	Positive*	No	Positive*	No	Positive	-
	Net equity	No	Positive	-	Negative	-	Negative*	Yes
	Retained earnings	No	Positive	-	Negative*	Yes	Negative	-
Secondary Sector Firms	Book leverage	Yes	Positive	-	Negative	-	Positive*	Yes
	Net equity	Yes	Negative	-	Positive	-	Negative	-
	Retained earnings	No	Positive*	No	Positive*	No	Negative	-
Tertiary sector Firms	Book leverage	Yes	Negative	-	Positive	-	Positive*	Yes
	Net equity	Yes	Positive*	Yes	Positive*	Yes	Negative	-
	Retained earnings	No	Negative	-	Positive*	No	Negative	-

Source: Authors' compilation (Here * means the relation is significant at 5% level of significance). "-" represents the relation is not significant.

Talking about the long-run relationship of the macroeconomic variables, it was found that:

- For all firms' data, it exists with book leverage.
- In case of primary sector firms, it exists with book leverage.
- With secondary and tertiary sector firms, it exists with book leverage and net equity both.

Talking about the short-run relationship of the macroeconomic variables, it was found that:

- The primary sector firms move towards leverage with an increase in SENSEX and/or GDP.
- The secondary sector firms preferred retained earnings with an increase in SENSEX and/or GDP.
- Tertiary sector firms, move towards net equity with an increase in SENSEX and/or GDP.
- WPI has a direct relation with leverage in all the four cases.

5.3. Conclusion

The results indicate that changes in the macroeconomic environment have a significant impact on the firm's choice of finance both in the long run as well as in the short run. There exists a causal effect of the macroeconomic variables on the firms' choice of capital.

Here an inter-sectoral variation is seen in the capital structure decisions of the firms− for primary sector firms, leverage is pro-cyclical (as per the trade-off theory); secondary sector firms implies a counter-cyclical leverage, i.e., preferring retained earnings (according to the pecking order theory); for the tertiary sector firms equity is pro-cyclical (as per the equity market timing theory). Therefore, depending upon the sector to which the firms belong to, the managers must identify the windows of opportunity during which the security issuance is less costly.

The financing choice is the main responsibility of the financial managers and how efficient they are in taking these decisions is reflected in the performance of the firms. Further, as it is known that the firms face difficulties in raising capital during the period of crisis. So, it is important for the managers to

understand the implications of the crisis on the capital structure decisions of the firms and in turn on their performances. Therefore, the next chapter discusses in detail, how the organizations leverage their strengths and uncover the hidden opportunities in an uncertain environment and hence, how their choice of capital affects their financial performance.

6. CAPITAL STRUCTURE DYNAMICS DURING RECESSION

While analyzing the financial data of the firms during the recession, it was found that there were some firms that had raised equity at that time i.e., during 2008-09. This raised curiosity as to why these firms had taken a risk and issued equity during a recession? What backed the decisions of the management while taking risks? Is there a difference in the performance of the firms depending upon their choices of capital, which in turn depends upon the efficiency of the management? So to find answers to these questions, the relationship between management efficiency, capital structure decisions and performance of firms during the period of recession is analyzed.

6.1. Methodology

The analysis is done to explore the differences in the performances of the firms with respect to their decisions of capital structure (i.e., whether they had raised equity or not) during the period of recession (i.e., 2008-09).

The analysis is done on the annual (audited) data of the firms listed on the BSE for the period 1997-2013, depending upon whether they had issued equity during the period of recession (2008-09) or not. Further, the firms are categorized into two datasets depending upon whether they have issued shares in the year 2008-09 or not. Both the datasets contain the firms belonging to the same set of industries.

Here again for a particular year, all the firms with missing information on firm variables and those firms which have their book leverage values greater than or equal to one were dropped.

The raw data is taken from the database CMIE PROWESS.

6.1.1. Variables Used

The Table 6.1 below shows the variables used and how they are computed using the definition of variables from COMPUSTAT.

Table 6.1: Variable and their Computations

Variable Name	Computation
Return on Total Assets	Profit after tax/Total Assets
Book Leverage	Borrowings
Share capital	Paid up equity capital
Debt to equity	Book Leverage/Share capital

Source: Authors' Computation (Using COMPUSTAT).

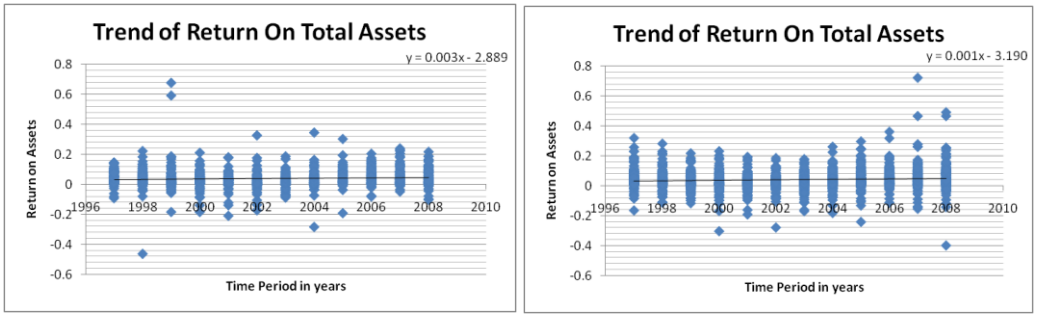
For the analysis, the dependent variable is the firms' performance, measured by return on total assets and the independent variable is the firms' choice of capital represented by debt to equity ratio, which is the proxy for management efficiency. The decision whether to go for debt or for equity financing is the main responsibility of the financial managers and they want to strike a balance that is appropriate for their firm. Further, how efficient they are in taking these decisions is reflected in the performance of the firms. So, the main intention here is to explore how efficient the management of the firm is in taking these decisions, which in turn affects the performance of the firms.

6.1.2. Pre-Issue Financial Data Analysis

In order to find answers to the above questions, a pre-issue financial analysis of the firms was done. The Figure 6.1 below shows the trend of return on total assets of the firms, which had issued shares during the recession and of those that did not issue shares.

The pre-issue comparisons of the return on total assets of the firms over the years (from Figure 6.1) show that the firms, which had issued equity, had high performance in comparison to those firms that did not issue equity. A profitable firm is able to generate more than enough cash to cover its operating expenses, taxes and payments to creditors. This gave confidence to the managers of the firms to take risks and issue equity even in the turbulent environment. This provided an insight to study the differences in the performance of the firms in context to the efficiency of the management. Further, to test this empirically a panel data analysis is done.

Figure 6.1: Pre-Issue Financial Data Analysis


Trend of Return On Total Assets
y = 0.003x - 2.889
Return on Assets
Time Period in years
Trend of Return On Total Assets
y = 0.001x - 3.190
Return on Assets
Time Period in years

(a) Firms which issued equity (b) Firms which did not issue equity

Source: Authors' Computation.

6.1.3. Model Used

In order to analyze the impact of the financing mix on the value of firms over time and across firms, panel data analysis is done. In panel data analysis, the most commonly estimated models are the fixed effects model and the random effects model. Further, to determine which model is more suitable, the Hausman Test is used. The above model is run for both the sets of firms.

6.2. Data Analysis and Results

The tables below show the results of the analysis for both the datasets, the dependent variable being return on total assets:

Table 6.2: Fixed Effects Model

	Issued equity in recession	**Not issued equity in recession**
Variable	**Coefficient**	**Coefficient**
Const.	0.040089*	0.041771*
Debt-to-Equity	-0.000176*	-0.000103

Source: Authors' Calculation. (Here * means the values are significant at 5% level of significance).

Table 6.3: Random Effects Model

	Issued equity in recession	**Not issued equity in recession**
Variable	**Coefficient**	**Coefficient**
Const.	0.039669*	0.041571*
Debt-to-Equity	-0.000149*	-8.78E-05

Source: Authors' Calculation. (Here * means the values are significant at 5% level of significance).

Table 6.4: Hausman Test

	Issued equity in recession	**Not issued equity in recession**
Test summary	**Prob.**	**Prob.**
Cross-section random	0.0291*	0.4871

Source: Authors' Calculation. (Here * means the values are significant at 5% level of significance).

In case of the firms which issued equity during recession, the Hausman test (from Table 6.4) rejects the null hypothesis that the preferred model is random effects. Hence, the results for the fixed effects model are accepted. Whereas, for the firms which did not issue equity, the preferred model is random effects. The result (from Table 6.2, Issued equity in recession) shows that debt-to-equity has a significant relationship with firm performance, for the firms which issued equity during recession. But, from Table 6.3 (Not issued equity in recession), it is seen that debt-to-equity has no significant impact on the firms' performance for the firms which did not issue equity during recession. So, from this one can say that for the firms which had issued equity during recession, the efficiency of the management plays an important role in the capital structure decision (since debt-to-equity is significantly related to firm performance) but not for the firms which did not issue equity.

Further, it is seen that for the firms which had issued equity during the recession, their individual characteristics influence their performance but not in the case of those firms which had not issued equity during the recession and for them the effect is determined randomly.

6.3. Conclusion

Stability of a firm backs the decisions of the management regarding their choice of capital and these efficient decisions, in turn, improves the performance of the firms. It also shows that there exist differences in the firms' performances based on the efficiency of the management. The efficiency of the management not only provides a competitive advantage to the firms but also provides the firms with the

capability to tolerate the financial crisis. Efficient managers can time the markets properly and are able to take the correct decisions regarding the choice of capital.

A sound management would result in the superior financial performances of the firms. One of the factors that affect this is the firms' capital structure, so the managers must select an appropriate source of finance (which minimizes the overall cost of capital). So, the next chapter proposes an optimal or "threshold" level of debt at which the firms could minimize its cost of capital and as a result, would maximize their value.

7. CAPITAL STRUCTURE DYNAMICS AND VALUE OF INDIAN FIRMS

In this chapter, the answer to the question as to how much debt the firms' should take is answered. The literature shows that an asymmetric relationship exists between leverage and firm value and no such work has been done for Indian firms. So, the present analysis has two objectives– first, to test whether an asymmetric non-linear relationship of debt ratio exists with the value of the firm or not; and if it exists, then to determine the optimal (or the threshold) level of debt. The second objective is to study the same effect when the firms are categorized into the three sectors of the economy.

Amongst the three theories of capital structure, only the trade off theory supports the existence of an optimal capital structure.

7.1. Methodology

In order to analyze the effect of capital structure dynamics on the value of firms, panel threshold regression model is used.

The present study is a balanced panel data study of Indian firms listed on BSE. The analysis is done on the annual, audited data of the firms from the year 1993-2013. The raw data of the firms are taken from the database CMIE PROWESS.

Here again for a particular year, all the firms with missing information on firm variables and those firms which have their book leverage values greater than or equal to one were dropped.

7.1.1. Variables Used

Table 7.1 shows the variables used and how they are computed using the definition of variables from COMPUSTAT.

Table 7.1: Variables and their Computations

Variable Name	Computation
Return on Assets	Profit After Tax/Total Assets
Book Leverage	Total Borrowings/ Total Assets
Debt Ratio	Total Borrowings /(Total Borrowings + Share Capital + Retained Earnings)
Profitability	Earnings before Interest, Taxes and Depreciation / Total Assets

Source: Authors' compilation (using COMPUSTAT).

In the analysis, three sets of variables are used– the dependent variable, the threshold variable and the control variable.

The dependent variable is the firm value and Return on Assets (ROA) is used as a proxy for it.

Next, is the threshold variable, it is the key independent variable which is used to investigate the asymmetric threshold effect of the firms' capital structure on the value of the firm. So, the debt ratio of the firm is treated as the threshold variable.

Further, from the literature, it is seen that firm profitability also has an impact on the firm value (direct relationship), but here the main interest is in exploring the effect of capital structure dynamics on the value of firms, therefore in order to improve the fitness of the model, profitability is used as the control variable.

7.1.2.Model Used

In order to capture the asymmetric response of the value of firm on the capital structure decisions, the advanced Panel Threshold Regression model developed by Hansen (1999) is used:

$$y_{it} = \mu_i + \gamma_1 D_{it} I_{it}(D_{it} < D^*) + \gamma_2 D_{it} I_{it}(D_{it} > D^*) + \theta X_{it} + e_{it} \quad (7.1)$$

The above model can also be estimated as is done in the work of Greenidge et al., (2012):

$$y_{it} = \mu_i + \gamma_1 (1 - I_{it})(D_{it} - D^*) + \gamma_2 I_{it}(D_{it} - D^*) + \theta X_{it} + e_{it} \quad (7.2)$$

In the above model, the subscript i and t indexes the individual firm and time respectively; y_{it} is the dependent variable– return on assets; X_{it} represents the control variable– profitability; the regressor– D_{it} is the debt ratio which is also the threshold variable and D^* represents the threshold level and e_{it} is the residual.

Further, I_{it} is a dummy variable that takes the value of one, for debt level greater than D^* and zero otherwise. Thus, the observations are divided into "two regimes" depending upon whether D_{it} it is greater or smaller than D^*. So, the regression slope γ_1 is estimated, when the debt is below the threshold level (here $D_{less} = (1 - I_{it})(D_{it} - D^*)$) and γ_2 is estimated when it is above the threshold level ($D_{greater} = I_{it}(D_{it} - D^*)$).

Further, for determining the value of debt threshold (D^*), a search is made in the debt ratio, over the range starting from 0.01 to 99.99 percent, in increments of 0.01 percent, i.e., among the following values of D_{it} {0.01%, 0.02%, 0.03% … 99.99%}.

The optimal level of debt is chosen based on the minimum sum of squared residuals (SSR).

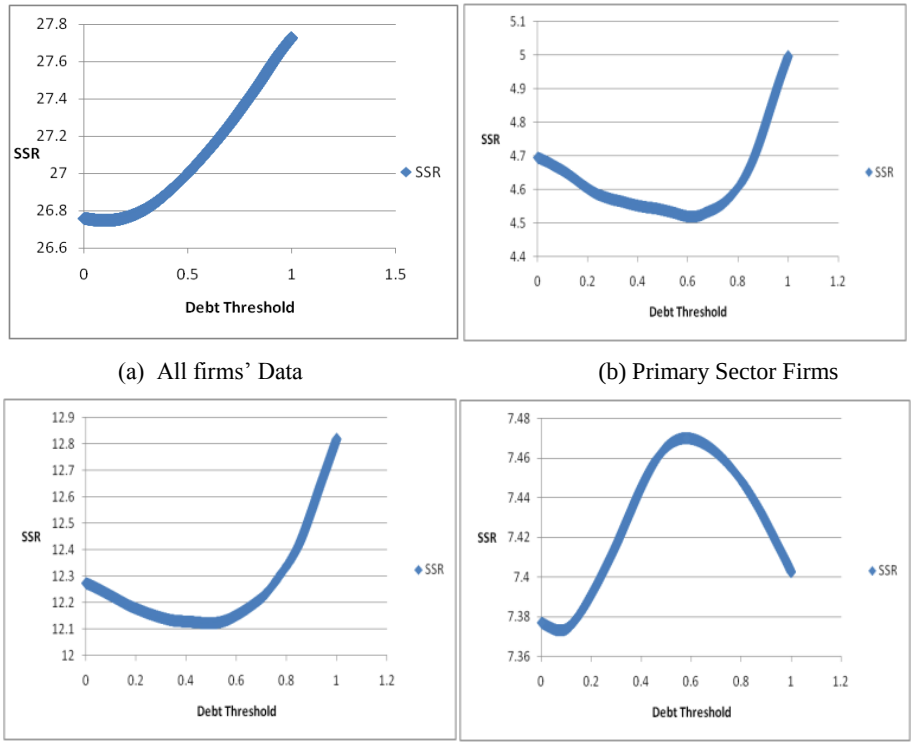
The above model is used for all firms' data and also when they are categorized into the three sectors of the economy.

7.2. Data Analysis and Results

The graphs below show the relationship of the SSR as a function of debt threshold. The point at which both SSR is minimum and the model is significant will be considered as the threshold level.

The graphs below show that there is no threshold effect in the case of all firms' data and tertiary sector firms, whereas there is a single threshold effect of debt ratio on the firms' value in case of primary (at 61.48%) and secondary sector (at 48.35%) firms (because at that point SSR is minimum and the model is significant).

Figure 7.1: Sum of Squared Residuals as a Function of Debt Threshold



(a) All firms' Data (b) Primary Sector Firms

(c) Secondary Sector Firms (d) Tertiary Sector Firms

Source: Authors' calculation.

Further, the tables below show how the firms' capital structure and profitability (independent variables) affects the value of the firm (dependent variable):

Table 7.2: Regression Estimates of All Firms' Data and Tertiary Sector Firms

	All Firms' Data	**Tertiary Sector**
Independent Variable	**Coefficient**	**Coefficient**
Const.	-0.0843*	-0.0660*
Debt Ratio	0.0041*	-0.0069*
Profitability	0.8805*	0.8273*

Source: Authors' calculation (Here * means the values are significant at 5% level of significance).

Table 7.3: Regression Estimates of Primary Sector and Secondary Sector Firms

	Primary Sector Firms @ 61.48%	**Secondary Sector Firms @ 48.35%**
Independent Variable	**Coefficient**	**Coefficient**
Const.	-0.0253*	-0.0583*
D_{less}	0.0041*	0.0140*
$D_{greater}$	-0.1423*	-0.0776*
Profitability	0.6652*	0.8529*

Source: Authors' calculation (Here * means the values are significant at 5% level of significance).

From Table 7.2, it is seen that debt ratio has a symmetric linear, direct relation with firm value for all firms' data and an indirect relation in case of the tertiary sector firms. On the other hand, an asymmetric non-linear relation of debt with firm value is seen in the case of primary and secondary sector firms (from Table 7.3). A threshold exists at 61.48% for primary sector firms and at 48.35% for secondary sector firms. Thus, splitting all the observations into two regimes, suggesting that increasing debt ratio beyond the threshold value would have a negative impact on the firm value and would just add to the existing level of the firm leverage; as a result, the firms may begin to suffer from debt overhang. So, an optimal debt ratio exists for the primary sector firms at 61.48% and for secondary sector firms at 48.35% respectively.

Here, an inter-sectoral variation is seen in the effect of capital structure decisions on the value of firms. The primary sector firms have a high threshold level of debt (at 61.48%) in comparison to the threshold level of the secondary sector firms (at 48.35%) and the tertiary sector firms have no threshold effect at all. Further, it is visible from the results that, regardless of the sectors to which the firms belong to, profitability has a direct relation with firm value (as expected).

7.3. Conclusion

The estimations have shown that in the case of all firms' data, no optimal level exists. Further, an inter-sectoral variation is seen in the effect of capital structure decisions on the value of firms. A single threshold effect exists in the case of primary and secondary sector firms (consistent with the trade-off theory) and no threshold effect for the tertiary sector firms. In addition to this, it is also observed that for primary sector firms, the threshold level is higher (i.e., of 61.48%) compared to the secondary sector firms (i.e., of 48.35%). Thus, an optimal debt ratio exists in the case of primary and secondary sector firms, but not for the tertiary sector firms. Therefore, depending upon the sector to which the firms belong to and knowing the optimal debt ratio, the financial managers will be able to formulate the appropriate financing policy.

8. FINDINGS OF THE STUDY

The main findings of the study are:

- The year in which the IPOs were issued, plays an important role while designing the firms' capital structure.
- An inter-sectoral variation is seen in the firms' choice of capital while considering the effect of the internal variables. The effect of equity market timing was more pronounced for secondary sector firms.
- Profitability influences the capital structure of the firms (even for the three sectors).
- The changes in the macroeconomic environment have a significant impact on the firm's choice of finance both in the long run as well as in the short run.
- An inter-sectoral variation is seen in the effect of macroeconomic variables on the capital structure decisions of the firms, in short run. It was seen that for the primary sector firms leverage is pro-cyclical (as per the trade-off theory); secondary sector firms implies a counter-cyclical leverage i.e., preferring retained earnings (according to the pecking order theory) and for tertiary sector firms equity is pro-cyclical i.e., preference is towards equity, as per the equity market timing theory.
- The efficiency of the management (in terms of their decision regarding the choice of capital) provides a competitive advantage to the firms, which results in their superior financial performance.
- There exists no optimal capital structure in case of all firms' data.
- An inter-sectoral variation is seen in the effect of capital structure decisions on the value of firms. An optimal debt ratio exists in the case of primary and secondary sector firms and not for the tertiary sector firms.
- The optimal level of debt is higher for primary sector firms (i.e. at 61.48%) compared to the secondary sector firms (i.e. at 48.35%).

9. CONCLUSION

Today's competitive environment has made the managers cautious and more aware of how to finance their business activities and manage the firms' capital structure. From the results it could be said that the Indian firms were cautious regarding their choice of capital and they did not follow the equity market timing theory blindly; instead, they matched their requirement of funds according to the changes in the economic conditions. In addition to this, there exists a causal effect of the macroeconomic variables on the firms' choice of capital. Through this, the managers can take effective decisions related to the choice of capital and can also mitigate the impact of the economic

fluctuations. Besides this, it is also seen that the stability of a firm backs the decisions of the management regarding their choice of capital and in turn these efficient decisions improve the performance of the firms. Further, in order to maximize the value of the firm, the management must choose that level of debt, which minimizes the overall cost of capital and maximizes earnings. A sound management of the capital would result in the superior performances of the firms.

An inter-sectoral variation is also seen in the firms' choice of capital and in the effect of capital structure decisions on the value of the firms. Firms belonging to the primary sector have a preference for debt (as per the trade-off theory) and thus, their level of optimal debt is high. On the contrary, the secondary sector firms have an easy access all the three sources of finance (i.e., debt, equity and retained earnings). However, as these firms are capital intensive, therefore for them funding through retained earnings is a powerful strategy (according to pecking order theory). Since it doesn't add to the debt profile nor does it sap the profits with interest payments, further, the tertiary sector firms are relatively high-risk firms; thus, these firms cannot borrow easily from banks and other financial institutions. The only option available to them is either to go for equity or for retained earnings. Here, it is seen that the firms preferred equity (according to the market timing theory) and for them there exists no threshold effect.

10. POLICY IMPLICATIONS

Capital structure decisions are important decisions for the firms as they not only affect the value of the firms but also provide useful recommendations for policy makers and management of the firms. The main goal of financial managers is to maximize the value of the firm and one of the factors affecting the firm performance is its capital structure; so the managers must select an appropriate source of finance which minimizes the overall cost of capital. The efficient decision of the management not only helps them in carrying out the operations of the firms smoothly but also increases the efficiency of the firms.

The results of this research have a great potential. It has been observed that (in general) at the time of requirement of funds, most of the firms raise capital while considering only their internal factors (like Jaypee Group borrowed funds during the financial slowdown and the IPO of the firm Tribhovandas Bhimji Zaveri barely scraped through during 2012) or they pay heed only to the macroeconomic conditions (as the Kingfisher Airline did while raising huge amount of debt in the year 2007) and hence, they ended up increasing their financial risk. However, this research implies that while raising funds, the managers must pay attention to both the economic conditions as well as to their firm level characteristics like profitability. In addition to this, it is also seen that at the time of crises because of the disrupted financial markets, the firms' face difficulty in raising capital. But,

here the research shows that if the firms' fundamentals are strong, then the managers could easily raise funds from the market, even during the time of recession (for instance the Reliance Power) and can maintain their profitability. The strong fundamentals along with management efficiency will contribute considerably for the success of the firms, as the stability of the firm will back the management's decisions regarding their choice of capital and in turn these efficient decisions will improve the financial performance of the firms.

Further, this research shows that an inter-sectoral variation exists in the firms' choice of capital. This variation exists because of differences in the environment in which the firms operate. Now, this finding has a practical relevance, that depending upon the sector to which the firms belong to and understanding how various factors (both internal and external) affect their choice of capital, the managers must identify the windows of opportunity during which the security issuance is less costly.

Above all, the research shows that there exists an optimal level of debt beyond which the firms' should not increase their level of debt because it would add to their level of risk. So, while designing the capital structure policy, the management must take care of this threshold level of debt. Now, again it is seen that this optimal level of debt is different for the firms belonging to different sectors, so the financial managers must formulate the financing policy accordingly.

11. LIMITATIONS OF THE STUDY AND SCOPE FOR FUTURE

The limitation of this work is that the study concentrates on the capital structure decisions of one nation only, i.e., India. The generalization of the findings for other countries (with different legal structure) remains an open empirical question. Therefore, a study which explores the validity of equity market timing for the firms belonging to different nations would add insights to the existing literature. Further, the scope of research can be extended for industrial classification also which may bring out a different perspective, as the firms in different industries behave differently. In addition to this, a research that contemplates the effect of internal/macroeconomic variables on the capital structure and financial performance of the firms, depending upon the age and/or size of the firms, would also enrich the knowledge base.

This research further suffers from another limitation that the firms with missing data on the important variables were dropped from the analysis, so there may be a loss of some valuable information.

REFERENCES OF SELECTED PAPERS

- Ahmad, A. H., & Abdullah, N. A. (2013). Investigation of optimal capital structure in Malaysia: A panel threshold estimation. *Studies in Economics and Finance, 30*(2), 108-117.

- Alti, A. (2006). How Persistent Is the Impact of Market Timing on Capital Structure? *The Journal of Finance, 61*(4), 1681-1710.
- Baker, M., & Wurgler, J. (2002). Market Timing and Capital Structure. *Journal of Finance, 57* (1), 1-32.
- Bokpin, G. A. (2009). Macroeconomic development and capital structure decisions of firms: Evidence from emerging market economies. *Studies in Economics and Finance, 26* (2), 129 - 142.
- Booth, L., Aivazian, V., Kunt, A. D., & Maksimovic, V. (2001). Capital Structures in Developing Countries. *The Journal of Finance, 56* (1), 87-130.
- Bougatef, K., & Chichti, J. (2010). Equity Market Timing and Capital Structure: Evidence from Tunisia and France. *International Journal of Business and Management, 5* (10), 167-177.
- Brown, S., Lajbcygier, P., & Li, B. (2008). Going Negative: What to Do with Negative Book Equity Stocks. Retrieved from http://ssrn.com/abstract=1142649. Accessed on October 2013.
- Greenidge, K., Craigwell, R., Thomas, C., & Drakes, L. (2012). Threshold Effects of Sovereign Debt: Evidence from the Caribbean. IMF Working Paper 12/157, International Monetary Fund, Washington, DC.
- Hansen, B. E. (1999). Threshold effects in non-dynamic panels: Estimation, testing, and inference. *Journal of Econometrics, 93* (2), 345-368.
- Huang, R., & Ritter, J. R. (2009). Testing the Market Timing Theory of Capital Structure. *Journal of Financial and Quantitative Analysis, 44* (2), 237–271.
- Islam, S. Z., & Heaney, R. (2009). Market timing or growth opportunities: Evidence from Australia. European Financial Management Association (EFMA): Annual Meetings 2009.
- Kraus, A., & Litzenber, R. H. (1973). A State-Preference Model of Optimal Financial Leverage. *The Journal of Finance, 28*(4), 911-922.
- Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review, 48*(3), 261-297.
- Modigliani, F., & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. *American Economic Review, 53*(3), 433-443.
- Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187-221.

- Panda, B., Mohapatra, S. P., & Moharana, S. (2013). Capital Structure of Indian Steel Companies: Its Determinants. Retrieved from http://ssrn.com/abstract=2630448. Accessed on March 2014.
- Rajan, R. G., & Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. *The Journal of Finance, 50*(5), 1421-1460.
- Shyam-Sunder, L., & Myers, S. C. (1999). Testing static trade-off against pecking order models of capital structure. *Journal of Financial Economics, 51*(2), 219-244.
- Welch, I. (2004). Capital structure and stock returns. *Journal of Political Economy, 112*(1), 106-31.

PUBLICATIONS

Journal Publications

- Khanna, S., Srivastava, A., & Medury, Y.(2016). A Study of Capital Structure Dynamics on the Value of Indian Firms using Panel Threshold Regression Model. *International Journal of Management Practice*, *9*(1), 40-55. **(Scopus Indexed)**
- Khanna, S., Srivastava, A., & Medury, Y. (2015). The Effect of Macroeconomic Variables on the Capital Structure Decisions of Indian Firms: A VECM/VAR Approach. *International Journal of Economics and Financial Issues*, *5*(4), 968-978. **(Scopus Indexed)**
- Khanna, S., Srivastava, A., & Medury, Y. (2015). Is Equity Market Timing the Sole Criteria for Capital Structure Decisions? An Insight from Indian Firms. *Indian Journal of* Finance, 9 (10), 48-64. **(Scopus Indexed)**
- Khanna, S., Srivastava, A., & Medury, Y. (2015). Analyzing the Relationship Between Management Efficiency, Capital Structure, and Firms' Performance in a Turbulent Environment: Evidence from India. *Indian Journal of Research in Capital Markets*, *2*(2), 56- 64.
- Khanna, S., Srivastava, A., & Medury, Y. (2014). Revisiting the Capital Structure Theories with Special Reference to India. *The International Journal Of Business & Management*, *2014* (8), 132-138.
- Khanna, S., Srivastava, A., & Medury, Y. (2013). Testing the Market Timing Theory of Capital Structure for Indian Firms. *JBIMS Spectrum, 1* (1), 9-20.

Conference Publications

- Khanna, S., Srivastava, A., & Medury, Y. (2015), "A Study of Capital Structure Dynamics on the Value of Indian Firms using Panel Threshold Regression Model", International Conference on Advances in Management and Technology in a Global World (ICAMT-15),

Jaypee Bsusiness School in association with University of Nebraska, India, December 18-20,2015.

- Khanna, S., Srivastava, A., & Medury, Y. (2015), "Do Capital Structure Decisions in Turbulent Environment Affect Value of Firm?", Twelfth AIMS International Conference on Management, organized by AIMS International- The Association of Indian Management Scholars International and Indian Institute Management Kozhikode, Kozhikode, India, January 2-5. ISBN: 978-81-924713-8-9.
- Khanna, S., Srivastava, A., & Medury, Y. (2013), "Testing the Market Timing Theory of Capital Structure for Indian Firms", International Research Conference 2013, Jamnalal Bajaj Institute of Management Studies, Mumbai, India, March 7-8.
  (Awarded with best research paper).

ANNEXURE

Table A.1: The results of the regression analysis for all firms' data

Panel A	**Change in Leverage**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+1,+2,+3,+4	+9@,+10@	+3	+1,+2@,+6,+9@
1993	+1,+2,+4,+6,+8,+9@	+4,+6,+9	+3,+6@,+7,+8,+9	+1,+8@
1994	+1,+2,+6,+8@	+1,+2,+3,+4,+5,+6,+8, +10@	+1,+5,+7,+8,+9	+1,+2,+3,+4,+9,+10
1995	+1,+2@,+3,+7@,+9,+10	+2,+3@,+7,+8@	+4@,+5,+6,+8,+10	+2,+4@,+5,+7@,+8 ,+9,+10
1996	+2@,+4@,+5@,+6	+2@,+3,+4@,+5@,+6, +7,+8@	+1,+5@,+7,+8,+10	+1,+4@,+5,+7,+8
1997	+8@	+3,+4@	+8@	+8@
1999		+2,+6	+5	+2
2000		+1	+2,+3,+5@	+1,+2,+4@,+7@
2001				
All	+2,+6,+7,+8,+9,+10	+1,+2,+3,+4,+6,+7,+8, +9,+10	+1,+3,+5@,+8,+9	+1,+3,+4@,+5,+7@ ,+8,+9
Panel B	**Dependent Variable = Net equity to assets**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+1,+5	+5,+8@,+9,+10@	+1,+2,+3,+4@,+5,+7, +10@	+1@,+8,+9,+10
1993	+1,+4,+5,+6@,+7@,+8	+4@,+5,+6@,+8,+9	+1,+2,+3,+4@,+5@,+6, +7	+1@,+2@,+5,+7, +9@
1994	+1,+2,+5,+6,+7,+8@,+9	+1,+2,+8,+9	+1,+2,+3,+5,+6@,+9	+1@,+2@,+8,+9@
1995	+1,+3,+4,+5@,+6,+7, +8@,+10	+3,+4,+5@,+6,+7,+8@	+1,+2,+3,+4,+5,+6,+7,+ 10	+1@,+3,+4@,+6,+7
1996	+3,+4,+6,+9	+2,+5@,+6@,+8@	+2@,+3,+4@+9	+2,+5@,+9@
1997	+2,+3,+4		+3,+4	+4@,+8
1999		+3,+6@		
2000	+3@,+4,+5	+4,+5@	+3,+5	+3@,+8
2001	+3,+4,+5			
All	+2,+3@,+4,+6,+8@,+10	+1,+2,+3@,+4,+5@,+6 ,+8	+1,+2,+3,+4@,+5,+6,+7, +8,+9,+10	+1@,+2@,+3@,+5, +6,+8,+9@,+10

Panel C	Dependent Variable = Change in retained earnings to assets			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+2,+3,+8@,+9@	+3,+7,+8@,+10@	+4,+6,+8	+2,+5,+6,+8@, +10@
1993	+2,+7@,+9,+10	+6,+7,+9@,+10@	+1,+2,+3,+4,+5,+6@, +7@,+8	+1@,+2,+3,+5,+6@ ,+7@,+9@, +10
1994	+2@,+4@,+6@,+8@	+5,+6,+8,+9	+1,+2,+3,+4,+5,+6,+8, +9@,+10	+1@,+4@,+8@
1995	+5@,+7,+8@	+1,+3,+5@,+8@	+1,+2,+3,+4,+5,+7@,+8, +10	+5,+6,+7@,+8@
1996	+3,+8@,+9@	+1,+8@,+9@	+1,+2,+3,+6,+7,+9@, +10	+3@,+4,+6,+8@,+9
1997	+3	+4@	+2,+3	+3@,+4@
1999	+3@,+4@,+8	+3@	+3,+6,+7,+8@	+8
2000	+4,+10@	+3,+7	+2,+3@,+5,+7@,+9, +10@	+3,+4,+7,+8@
2001		+6	+5,+6	
All	+1@,+2@,+3@,+4@, +5@,+7@,+8@	+1,+3@,+4,+5,+6@,+7 ,+8	+1,+2,+3@,+5@,+6@, +8,+9,+10	+2@,+3,+4,+6,+7, +8@
Panel D	**Dependent Variable = Residual change in leverage**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+2@,+3@,+5,+10	+3,+6,+7@,+9	+4@,+5,+7	+1@,+3,+5,+6,+7, +8,+9
1993	+1,+2@,+7@,+8,+9	+1,+6@,+8,+9,+10	+1,+2,+3,+4,+5,+6,+8@	+1@,+6,+7,+8@, +9@,+10
1994	+2,+4,+5,+6,+8@,+9	+1,+2,+3,+5@,+6,+8, +9	+1,+2,+3,+4,+5,+6@,+8, +9,+10	+2@,+3,+8,+9@
1995	+2,+4,+5@,+6,+7,+10	+1@,+3@,+5,+7	+1,+2,+3,+4,+5,+7,+8,+ 9,+10	+1@,+5,+6,+7@,+8 ,+9
1996	+3@	+8@	+2@,+3,+6,+7,+8@,+9, +10	+1@,+2,+6
1997	+3@,+8,+9@,+10@	+9@	+3,+10	+7,+10
1999	+4		+1	+1@,+5
2000	+7@,+8,+9@,+10		+2,+3,+4,+6,+7@,+8	+9
2001				
All	+2,+3,+4,+5,+,8,+9,+10	+1,+2,+3@,+4,+5@,+8 ,+9	+1,+2,+3,+4@,+5,+6,+8, +9,+10	+1@,+2@,+3,+5,+6 ,+7,+8@,+9@,+10

Source: Authors' compilation (IPO levels for which the regression results are significant for the particular IPO years). @ means the relationship of the variable is opposite to what was expected.

Table A.2: The results of the regression analysis for primary sector firms

Panel A	Change in Leverage			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+1,+2,+9	+1@,+7@	+3,+10	
1993	+1,+8.+10@	+8@,+9,+10	+2,+6,+9	+1,+2,+9,+10@
1994	+1,+2		+1,+5,+7,+8	+1
1995	+1,+10	+4@,+5,+7,+8,+10@	+4@,+5,+7	+1,+4@,+7
1996	+5@,+6		+5	
All	+2,+3@,+5@,+6,+9	+3@,+4,+5,+9,+10	+1,+3,+5,+7,+8	+4@,+8,+10@
Panel B	**Dependent Variable = Net equity to assets**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+1,+4@,+9		+3,+5,+8@	+8
1993	+5,+6,+8	+6,+8	+2,+5,+6,+8,+9	+1@,+8@,+9@
1994	+1,+3,+7@,+10		+9	

1995	+1,+2,+4,+9	+1,+4@,+5	+1,+5,+7,+8@,+10	+1@,+7@,+8
1996	+6	+6@,+8@	+1,+6,+8,+10	+1@,+6@,+8@
All	+2,+4@,+6,+8@,+10	+1,+2,+5,+8	+1,+2,+3,+7,+8@,+9, +10	+1@,+2@,+3@,4, +8,+9@,+10 @
Panel C	**Dependent Variable = Change in retained earnings to assets**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992		+2,+6,+10@	+4,+5,+6,+7,+8,+10	+4@,+5,+7,+8@
1993	+3,+7	+8	+4,+7,+9@,+10	+9
1994	+1,+3@,+6	+6@,+7,+8,+9	+4,+5,+6,+7,+8,+9,+10	+3,+4,+6@,+7
1995	+5,+10	+6,+9	+4,+6,+7,+8,+10	+9,+10@
1996	+1@,+2	+1,+2,+7		
All	+3,+8@	+7,+8,+10	+1,+4,+6,+7,+8,+9,+10	+4,+6,+7,+8@
Panel D	**Dependent Variable = Residual change in leverage**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+4@,+8	+8@	+3,+4,+5,+6	+7,+8
1993	+1@,+2@,+4,+9,+10	+9	+1,+2,+3,+6,+7@,+9@	+1@,+9,+10@
1994	+1@,+2@,+3,+5@	+1,+7@	+5,+6,+7,+8,+9,+10	+1,+3,+5@,+8
1995	+1,+2,+5@,+7@,+9, +10@	+5,+6,+7,+8	+3,+4,+5,+6,+7,+8,+9, +10	+6,+7,+9
1996		+2@	+1,+4,+6,+9,+10	+1@
All	+3,+5,+6@,+7,+8,+10	+1,+3@,+4,+6@,+7@, +9,+10	+1,+2,+3,+4,+5,+6,+7	+1@,+3@,+4,+8, +10@

Source: Authors' compilation (IPO levels for which the regression results are significant for the particular IPO year). @ means the relationship of the variable is opposite to what was expected.

Table A.3: The results of the regression analysis for secondary sector firms

Panel A	**Change in Leverage**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+1,+3,+4,+7	+9	+3	
1993	+1,+2,+4	+4	+3,+8	+1,+2@,+8
1994	+1,+2,+6@,+9	+1,+2,+6,+10@	+1,+5,+6,+7,+8	+1,+3@,+9,+10
1995	+1,+2@,+3,+4,+10	+2,+3@,+4,+7,+10	+1,+4@,+5,+6	+1,+2@,+4@,+10
1996		+3,+9	+6,+8,+9@	+8,+9@,+10
2000	+6	+6@	+6	
All	+1,+4,+6@,+7,+8@,+10	+1,+4,+6,+7,+8,+9, +10@	+1,+2@,+3,+5,+6,+7,+8, +9	+1,+2@,+3,+6,+8, +9,+10
Panel B	**Dependent Variable = Net equity to assets**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+5,+7,+8	+5	+3,+4@,+5	
1993	+1,+4,+9	+1,+7@	+1,+2,+3,+6,+7	+1@,+7,+9@
1994	+1,+2,+7,+9,+10	+2,+4,+8@,+9	+1,+2,+3,+4@,+5,+6,+8 @,+9@	+1@,+2@,+4,+8,+ 9@,+10
1995	+1,+2@,+3,+4,+5,+6,+7	+1,+2@,+3,+4,+5,+6, +7,+10@	+1,+2@,+3,+4,+5,+6@, +7,+8,+10	+1@,+2,+4@,+5@ ,+7,+6
1996	+1@,+2@,+4,+6	+6	+3,+6@	+6@
2000	+6@,+7		+6	
All	+1,+2,+4,+5@,+6@,+8 @,+10	+2,+3,+4@,+5@,+6, +8@	+1,+2,+3,+4@,+5,+6,+7	+1@,+2@,+3@, +4@,+5@
Panel C	**Dependent Variable = Change in retained earnings to assets**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+2,+3,+8	+8@,+9	+3,+8,+9	+2
1993	+1,+2,+6@,+10	+1@,+2@,+10	+3,+4,+5,+6@,+7,+8	+2,+6,+9,+10
1994	+1,+2,+7,+8@,+10@	+6,+7,+10@	+2,+3,+4,+5,+8,+9,+10	+1,+4@,+6,+8@,

				+10
1995	+4,+5@,+6@,+8	+1,+7,+5@,+6@,+8, +10	+2,+3,+4,+5,+6@,+7@, +8@,+10	+3,+4@,+5@, +6@,+8,+9
1996	+3,+5,+6@	+3,+4,+6@,+8,+10@	+1,+2,+5,+6@,+8,+10	+4@,+6@
2000		+1,+7	+8	
All	+1,+2,+4,+5@,+6@,+10	+1,+3@,+5@,+6@, +10@	+1@,+2,+3,+4,+5,+6@, +8,+10@	+1,+2@,+3,+4@, +6@,+10
Panel D	**Dependent Variable = Residual change in leverage**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+1@,+2@,+3@,+5,+8	+1,+3	+1,+3,+4@,+5,+7,+9	+2,+6
1993	+1,+2@,+4,+6@,+8,+10	+1,+4,+6,+8,+10	+1,+2,+3,+4,+5,+7,+8@, +9	+1@,+10
1994	+4,+5,+6,+7@,+9,+10	+1@,+2,+7@,+9	+1,+2,+4,+5,+7,+8,+10	+1@,+2@,+3,+8,+ 9@,+10
1995	+3,+4,+5@,+6@	+1@,+3@,+4,+5,+9@, +10@	+1,+2,+3,+4,+5,+7,+8, +9@,+10	+1@,+2@,+4@,+5 @,+6@,+8,+9
1996	+1@,+3,+4,+6,+9	+2@,+4,+8@,+10	+1,+3,+5,+8,+9	+1@,+6@,+8, +9@,+10
2000				+1@
All	+1,+3@,+4,+5@,+6,+9, +10@	+1@,+2,+3,+6,+9,+10	+1,+2,+3,+4,+5,+8@, +9@	+1@,+2@,+3,+4@ ,+8,+9@,+10

Source: Authors' compilation (IPO levels for which the regression results are significant for the particular IPO year). @ means the relationship of the variable is opposite to what was expected.

Table A.4: The results of the regression analysis for tertiary sector firms

Panel A	**Change in Leverage**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+1			+1,+6
1993	+1,+2,+3,+6	+3,+4,+6,+8,+9	+6@,+7	+1,+8
1994	+1,+2,+6,+8@	+2,+3,+8	+2@,+5,+8	+1,+8,+9,+10
1995	+1,+5,+7@,+9	+2,+9	+7@,+8	+7@
1996	+4@	+2@,+4@,+6	+2@,+5@,+7	+4@,+7
1999		+2,+6	+5	
2000		+9	+2,+3,+5@	+2,+4@
All	+3@,+5,+9	+2,+3,+4@,+5,+9	+3@,+5@,+6@,+8	+1,+4@,+6@,+7@, +10
Panel B	**Dependent Variable = Net equity to assets**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+5	+9	+2	+1@,+9
1993	+5,+6,+7@,+8,+9@	+8	+2,+9	+2@,+7
1994	+1,+4@,+8@	+1,+2,+4@,+6,+8	+1,+2,+4,+5,+6@,+9	+1@,+2@,+4@,+8, +9@
1995	+1,+3,+4,+5,+6 +7,+8@,+10	+3,+7	+2,+3,+4,+7	+1@,+3,+7@
1996	+3@,+4,+9	+1,+9	+2@,+3,+4@,+9	+2,+9@
1999	+8,+9	+3,+6@		
2000	+4,+5		+3,+5,+9	+3@,+8,+10@
All	+3@,+4,+7@,+8@,+10	+3@,+4,+5@,+7@,+8	+1,+2,+3,+4@,+5,+7,+8, +9	+1@,+3@,+4@,+7 @,+8,+9@
Panel C	**Dependent Variable = Change in retained earnings to assets**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+3,+9@		+6	
1993	+2,+3,+4,+7@	+1,+5,+7	+2,+4,+6@,+7@,+10	+1@

1994	+2@,+4@,+8@	+2,+5,+8	+3,+4,+5,+6,+8,+9,+10	+1@,+4@,+8@
1995	+2,+7,+8@,+9	+2,+8@,+9	+2,+3,+4,+5,+8,+10	+7@,+8@
1996	+2@,+3,+6@,+8@	+1,+8@	+1,+2,+3,+5,+7,+9@, +10	+6,+8@,+9
1999	+4@,+8		+6,+7	+8
2000	+4@	+7	+2,+3@,+7@,+10@	+3,+7,+8@
All	+2@,+3@,+4,+5@,+7 @,+8@	+3,+4@,+6@,+7@	+1,+2,+3@,+4@,+6,+7 @,+8, +9@,+10	+2@,+3,+4,+5@,+ 6,+7,+8@,+9@
Panel D	**Dependent Variable = Residual change in leverage**			
IPO Year	**Market-To-Book Ratio**	**Asset Tangibility**	**Profitability**	**Size**
1992	+1@,+3@,+5+10	+9@	+2,+3	+4,+5,+6,+9
1993	+2@,+7@,+9@	+7@,+8	+2,+4,+9	+1@,+6
1994	+6	+1,+2,+3,+8	+1,+2,+3,+4,+5,+8	+1@,+2@,+8
1995	+4,+5,+6,+7		+2,+3,+5,+7,+8,+9,+10	+7@
1996	+4,+7		+2@,+3,+4@,+7,+9,+10	+2
1999	+4		+1	+1@
2000	+7@,+8,+9@,+10	+9@	+2,+4,+6,+8	+9
All	+3,+4,+8,+7@	+4,+3@,+7,+8	+1,+2,+3,+4@,+5,+6,+8, +9,+10	+3,+4@,+6,+8@

Source: Authors' compilation (IPO levels for which the regression results are significant for the particular IPO year). @ means the relationship of the variable is opposite to what was expected.

Table A.5: VECM for All firms

Dependent variable	**Book leverage (VECM)**		**Net equity (VECM)**		**Retained earnings (VECM)**	
Independent Variable	**Coefficient**	**Probability**	**Coefficient**	**Probability**	**Coefficient**	**Probability**
EC(1)	-0.953897	0.0000***	-0.158607	0.4674	-0.272543	0.0104**
EC(2)	-	-	-0.032019	0.2325	-	-
Dependent variable(-1)	0.646075	0.0000***	0.161594	0.6318	0.039392	0.8605
SENSEX(-1)	0.017352	0.3066	-0.004478	0.9042	0.030405	0.1693
GDP(-1)	-0.116514	0.4223	0.005712	0.9861	-0.341342	0.11
WPI(-1)	0.320456	0.0096***	0.279728	0.2231	-0.171625	0.1227
Const.	-0.016007	0.1252	-0.009813	0.6502	0.028805	0.0728*

Source: Authors' calculation (Here *, **, *** means the values are significant at 10%, 5% and 1% respectively). "-" represents absence of the variable.

Table A.6: VECM for Primary Sector Firms

Dependent variable	**Book leverage (VECM)**		**Net equity (VECM)**		**Retained earnings (VECM)**	
Independent Variable	**Coefficient**	**Probability**	**Coefficient**	**Probability**	**Coefficient**	**Probability**
EC(1)	-1.210607	0.0000***	0.011113	0.9506	-0.122592	0.4299
EC(2)	-	-	0.023341	0.8812	-	-
Dependent variable(-1)	0.511654	0.0002***	-0.483724	0.0304**	-0.024171	0.9314
SENSEX(-1)	0.045908	0.0380**	8.68E-05	0.9974	0.013384	0.6303
GDP(-1)	0.526165	0.0094**	-0.071363	0.7039	-0.375595	0.0107**
WPI(-1)	0.089811	0.3656	-0.383919	0.0183**	-0.182443	0.2161
Const.	0.035419	0.0128**	-0.012723	0.3282	0.033851	0.0660*

Source: Authors' calculation (Here *, **, *** means the values are significant at 10%, 5% and 1% respectively). "-" represents absence of the variable.

Table A.7: VECM for Secondary Sector Firms

Dependent variable	Book leverage (VECM)		Net equity (VECM)		Retained earnings (VECM)	
Independent Variable	**Coefficient**	**Probability**	**Coefficient**	**Probability**	**Coefficient**	**Probability**
EC(1)	-0.55013	0.0016***	-0.287611	0.0182**	-0.117302	0.2169
EC(2)	-0.038847	0.0002***	-0.067112	0.0089***	-	-
Dependent variable(-1)	0.423585	0.0022***	-0.156691	0.6827	0.148862	0.4173
SENSEX(-1)	0.016851	0.3326	-0.041396	0.148	0.046332	0.0076***
GDP (-1)	-0.000876	0.9957	0.210392	0.3763	0.561969	0.0006***
WPI(-1)	0.154576	0.0477**	-0.001556	0.9945	-0.078294	0.3599
Const.	-0.012695	0.2571	-0.003553	0.8278	0.036628	0.0025***

Source: Authors' calculation (Here **, *** means the values are significant at 5% and 1% respectively). "-" represents absence of the variable.

Table A.8: VECM and VAR Model for Tertiary Sector Firms

Dependent variable	Book leverage (VECM)		Net equity (VECM)		Retained earnings (VAR)	
Independent Variable	**Coefficient**	**Probability**	**Coefficient**	**Probability**	**Coefficient**	**Probability**
EC	-0.668541	0.0001***	-0.990659	0.0433**	-	-
Dependent variable(-1)	1.049444	0.0000***	0.551857	0.1644	0.54422	0.1291
SENSEX(-1)	-0.023058	0.3146	0.057911	0.0312**	-0.003045	0.9318
GDP (-1)	0.324953	0.1016	0.862468	0.0479**	0.119418	0.0376**
WPI(-1)	0.706598	0.0039***	-0.219702	0.6793	-0.139512	0.2725
Const.	-0.062138	0.0020***	-0.031653	0.3396	-1.399337	0.3822

Source: Authors' calculation (Here **, *** means the values are significant at 5% and 1% respectively). "-" represents absence of the variable.